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ABSTRACT

In May 1991, a survey was conducted of businesses and industries in the Mid-Mon Valley in Pennsylvania to develop a profile of the companies, determine their competitiveness and expansion since completion of a 1987 Business Outreach Survey, determine their use of technology, identify training needs for the Mid-Mon Valley, and examine how companies work with local schools at all levels. A total of 139 companies were contacted, and 75 responded for a 54% response rate. Major findings of the study included the following: (1) while companies with over 100 employees are few in number, they hire the majority of workers in the Mid-Mon Valley; (2) manufacturing was the most common activity among companies surveyed; (3) since 1987, companies appeared to have drawn closer to home, doing less business at the tri-state level; (4) although employment was up 18.6% over 1987, it was still 32% below the 1984 level; (5) semi-skilled jobs doubled in number, while unskilled jobs declined by one-half; (6) while companies were making considerable purchases in computers and related software, they were not making accompanying changes in employment training and were relying heavily on on-the-job training; (7) companies found it difficult to recruit and hire skilled labor, with most reporting "word of mouth" as the most common recruitment technique; (8) the most frequently mentioned quality desired of employees was a positive work attitude; and (9) 34% of companies were involved in cooperative education programs, while an additional 33% expressed an interest in such programs. Specific recommendations for companies, economic development agencies, and educational institutions; detailed data tables; a copy of the survey instrument; and a list of participating companies are included. (PAA)

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MID-MON VALLEY SURVEY:

Education and Training Needs

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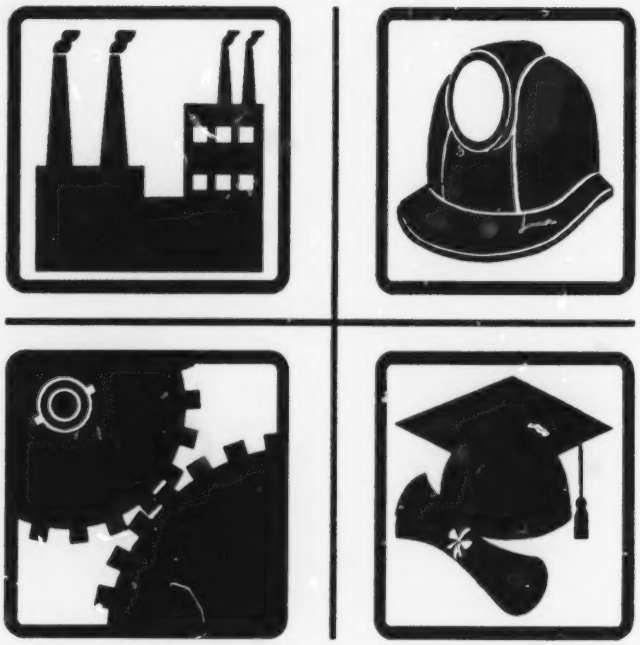

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prepared for

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TABLE OF CONTENTS

LIST OF FIGURES iv

LIST OF TABLES v

ACKNOWLEDGEMENTS vi

EXECUTIVE SUMMARY vii

CHAPTER ONE - INTRODUCTION 1

Objectives of the Report..... 2

Survey Procedures..... 2

CHAPTER TWO - PROFILE OF THE MID-MON VALLEY 4

Size of Companies..... 4

Business and Industry Activity..... 7

Market Area and Competition..... 8

Employment in the Mid-Mon Valley..... 11

Composition of the Workforce..... 13

Employee Recruitment..... 16

Profile Summary..... 18

CHAPTER THREE - TECHNOLOGY ASSESSMENT 19

Investment in Technology..... 20

Equipment and Technology..... 21

Summary of Technology Assessment..... 26

CHAPTER FOUR - EDUCATION AND TRAINING 27

Employee Qualities Desired by Business..... 27

Training Resources..... 29

Employer Assistance to Training..... 30

Education and Training Summary..... 31

CHAPTER FIVE - CONCLUSIONS 32

Objective One..... 32

Objective Two..... 33

Objective Three..... 34

Objective Four..... 35

Objective Five..... 36

Objective Six..... 37

CHAPTER SIX - RECOMMENDATIONS 38

REFERENCES 41

APPENDIX A - QUESTIONNAIRE 42

APPENDIX B - BUSINESS PARTICIPANTS 49

LIST OF FIGURES

Figure		Page
1.	Size of Companies - Number of Employees	4
2.	Size of Companies - Number of Companies	6
3.	Types of Companies	7
4.	Market Area - Total Survey	8
5.	Market Competition - Total Survey	9
6.	Market Area - Subgroup	10
7.	Market Competition - Subgroup	11
8.	Subgroup Employment	12
9.	Composition of Workforce - Subgroup (1987 Data)	13
10.	Composition of Workforce - Subgroup (1991 Data)	14
11.	Composition of Workforce - Total Survey (1987 Data)	15
12.	Composition of Workforce - Total Survey (1991 Data)	15
13.	Employee Recruitment - Problem Areas	16
14.	Employee Recruitment - Methods and Places	17
15.	Microcomputer Use - Software Packages	19
16.	Future Capital Investments in Technology	20
17.	Production Materials	21
18.	Manufacturing Processes	22
19.	High Technology Processes	23
20.	New Technology - Recommending Individual	24
21.	New Technology - Information Sources	25
22.	Desirable Employee Qualities	28
23.	Use of Training Agencies	29
24.	Helpful Training Resources	30
25.	Co-operative Education	31

LIST OF TABLES

Table		Page
1.	Size of Companies	6
2.	Future Technology Capital Investments.....	21

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EXECUTIVE SUMMARY

In May of 1991, a survey of businesses and industries in the Mid Mon Valley was completed. The survey consisted of a mailed questionnaire. A total of 75 companies responded to the survey. Forty two of these companies also participated in the 1987 Business Outreach Survey. Comparisons were made between the finding of the two surveys.

Objectives of the Report

There were six major objectives of the survey:

1. To determine the extent of company expansion as projected in the 1987 survey of the Mid-Mon Valley
2. To determine the extent to which companies in the Mid-Mon Valley are remaining competitive with both local and distant markets
3. To determine to what extent companies are using or planning to use new technologies and how these companies assess the new technologies
4. To determine how the companies in the Mid-Mon Valley work with the schools at all levels for pre-employment skills and retraining of current employees.
5. To determine training needs of the Mid-Mon Valley in the next few years.
6. To determine how companies in the Mid-Mon Valley participate with schools in joint projects and how important this is to these companies.

The responses to the questionnaire led to a profile of the condition of companies in the Mid Mon Valley, their use of technology, and the training needs of the Mid Mon Valley. The main report contains detailed charts and graphs of the results of the survey. The major points are summarized below.

1. Though companies of over 100 employees are few in number, they hire the majority of workers in the Mid Mon Valley.
2. Manufacturing is a major activity in the Mid Mon Valley.
3. Companies appear to have drawn closer to home, doing less business at the tri-state level.
4. Although employment is up 18.6% over 1987, it is still 32% below the 1984 level.
5. There has been a shift in job classifications, with semi-skilled jobs doubling and unskilled jobs reduced by one half.
6. Companies are making considerable purchases of computers and related software; however, the companies are not accompanying these purchases with changes in employment training.
7. Companies are relying heavily on on-the-job training.
8. Companies find it difficult to recruit and hire skilled workers.

Recommendations

The survey found that overall the Mid Mon Valley is in a process of recovery from the decline of employment in the eighties. Below are recommendations to accelerate that recovery process. These are directed at companies, educational institutions, and economic development agencies.

Recommendations to Companies:

1. Business and industry must establish better employee search procedures to find the best qualified people. Use of Job Service and placement services of schools

should be high on the list with less dependence on word of mouth.

2. All companies should encourage and support their employees' participation in education and training that will enhance their job performance.
3. All companies should evaluate their ability to assist with pre-employment training through co-operative education programs.

Recommendations to Economic Development Agencies:

1. The economic development agencies of the Mid Mon Valley should establish working partnerships with the schools for delivery of education on technology to local companies.
2. The Mid Mon Valley Progress Council should establish a program to assist small companies in expanding their market areas.

Recommendations to Educational Institutions:

1. The colleges and universities within the Mid-Mon Valley should establish a means to effect transfer of their computer and non-computer technical experience to the companies of the valley. This should include traditional seminars and workshops, and explore innovative delivery methods to take the information directly to the company.
2. A meeting of schools (colleges, University, trade, and area vocational) should be called by January 1992 to share information on existing programs and to form

cooperative links between these groups. Because of the importance of this to the valley the Mid Mon Valley Progress Council should work with Westmoreland Community College, Community College of Allegheny County, and California University of Pennsylvania to convene this meeting.

3. There needs to be established a single representative organization or consortium to coordinate and focus the training resources within the region.
4. All schools must emphasize to their students the importance business and industry places on work attitudes and interpersonal skills. This should be presented to students in both the vocational and the academic track.
5. The Engineering Technology Department of the Community College of Allegheny County should survey firms using CAD to determine the skills expected of CAD operators.

CHAPTER 1

INTRODUCTION

Over the past ten years, the Mid-Mon Valley has been hit with heavy unemployment. What does the next ten years hold for the region? Studies of the Mid-Mon Valley during the 1980's showed an employment decline in all areas of business and industry. The sharpest decline was in the steel industry. The steel industry had been the largest employer prior to that period. A survey by Fuller and Gillis in 1987 showed a number of small and medium-sized firms that were predicting employment gains by 1990. This report compares the present state of the Mid-Mon Valley, as reported by industry during April and May of 1991, to the results of the Fuller and Gillis study.

Since today's manufacturers and businesses are becoming more dependent on modern technology, the extent that companies in the Mid-Mon Valley use or plan to use new technologies was examined. Previous studies have expressed the need for schools and industry to work closely together to assure that the workforce can use this new technology. This survey assessed the extent to which companies in the Mid-Mon Valley work with the schools for assurance of pre-employment skills and for retraining of existing employees.

Objectives of the Report

1. To determine the extent of company expansion as projected in the 1987 survey of the Mid-Mon Valley.

2. To determine the extent to which companies in the Mid-Mon Valley are remaining competitive with both local and distant markets.

3. To determine to what extent companies are using or planning to use new technologies and how these companies assess the new technology.

4. To determine how the companies in the Mid-Mon Valley work with the schools at all levels for pre-employment skills and retraining of current employees.

5. To determine training needs of the Mid-Mon Valley in the next few years.

6. To determine how companies in the Mid-Mon Valley participate with schools in joint projects and how important it is to these companies.

Survey Procedures

A review of previous studies of the Mid-Mon Valley was completed prior to beginning the survey. This review was necessary to determine those areas that had not been adequately studied or for which trend information would be helpful. As it contained the best and most recent information on the valley, the 1987 study by Fuller and Gillis sponsored by Pennsylvania State University, Bell of Pennsylvania, and the Mid-Mon Valley Economic Revitalization Program was studied carefully. The original data was also available to cross-check and compare with new information. The data from this report has been used to present trends. In that sense, one part of this study was a follow-up to the 1987 report.

From the review of the past reports, the set of objectives stated above was developed. A questionnaire was written to obtain the information needed. The questionnaire was reviewed by a group in industry, education, and business and was piloted with five companies and revised. The resulting instrument may be found in Appendix A.

A mailing list of 164 companies was prepared based on a computerized phone directory and the group of companies that responded to the 1987 survey. A total of 151 questionnaires was mailed. Thirteen companies were deleted from the original list as duplicates or no longer in business in the area. An additional twelve companies were either out of business or had changed address and were not contacted. A total of 75 responses were received from the remaining 139 companies for a 54 percent return. This rate of return is due in large part to the effort and support of the volunteers who contacted companies that did not respond to the mailings. A discussion of the company breakdown by size, employment, and area of business can be found in Chapter Two.

All data was entered into a database program and copies of the data files, in dBase3 format, may be obtained from the Department of Engineering Technology, South Campus. Graphics were compiled using Harvard Graphics, and the total report prepared on PFS:Professional Write.

CHAPTER 2

PROFILE OF THE MID-MON VALLEY

The survey of the Mid-Mon Valley was completed in May of 1991. The companies responding are listed in Appendix B. Since the information presented was considered confidential, the results were compiled to represent the companies by group or category. For comparison, some categories were selected to agree with the Fuller and Gillis study.

Size of Companies

The mix of very small to large companies is about the same in the 1991 survey as in the 1987 survey.

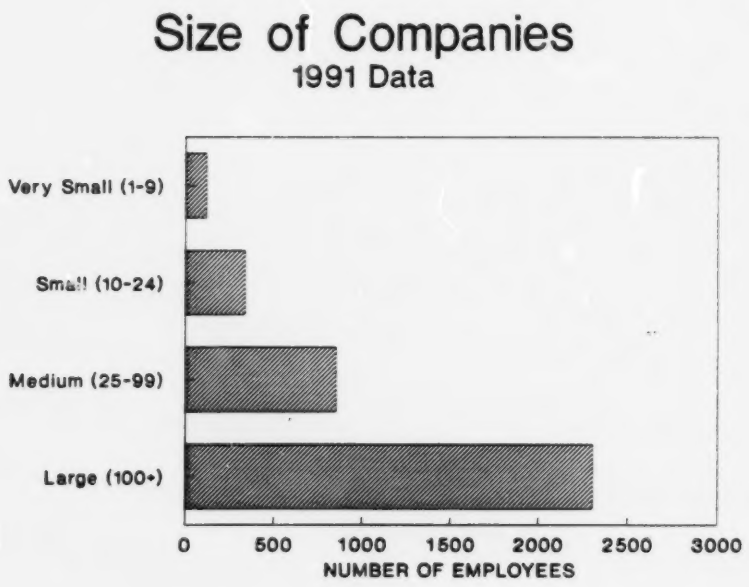

Figure 1

The majority of employees are in the large companies. These companies, with over 100 persons each, employ 64

percent of the workers in this survey. The smaller companies, with 24 or fewer employees, represent 11 percent of the workers in this survey. The 1987 report had suggested that, because of their numbers, there was potential for substantial growth in the area of smaller firms. Although there has been growth, the firms of less than 24 employees are not growing faster than the larger firms. Table 1 presents the results of both the 1991 and the 1987 survey. The very small and small companies combined have grown from 10 percent to 12 percent. The large companies have grown from 62 to 64 percent of the total number of employees. Although the growth rate is the same, there are more new jobs in the larger companies. Figures 1 and 2 illustrate that the majority of the companies represent the minority of the employees. Additionally, a small minority of companies employ the majority of the workers.

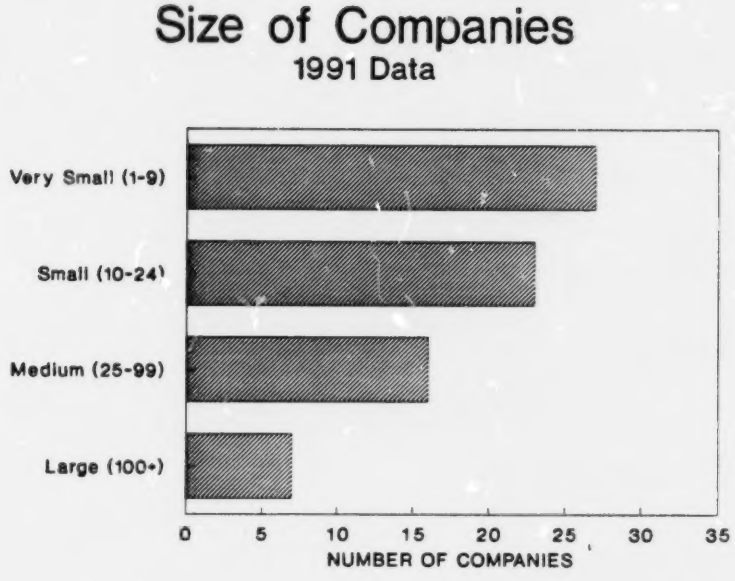

Figure 2

	Percentage of Companies in each category		Percentage of Employment in each categor	
	1991	1987	1991	1987
Very Small (1 - 9)	37	35	3	4
Small (10 - 24)	3[illegible]	25	9	6
Medium (25 - 99)	22	30	24	28
Large (100+)	10	10	64	62
Total	100	100	100	100

Table 1

Business and Industry Activity

The companies in the Mid-Mon Valley are involved in chemicals, wholesale and retail trade, services, construction, printing and manufacturing. The largest segment is manufacturing. In Figure 3 the 75 companies responding to this survey are grouped by major activity. Because the company manufactured and sold or used the product, it was difficult to determine a classification in some cases. These companies were grouped based on their primary relationship to the product.

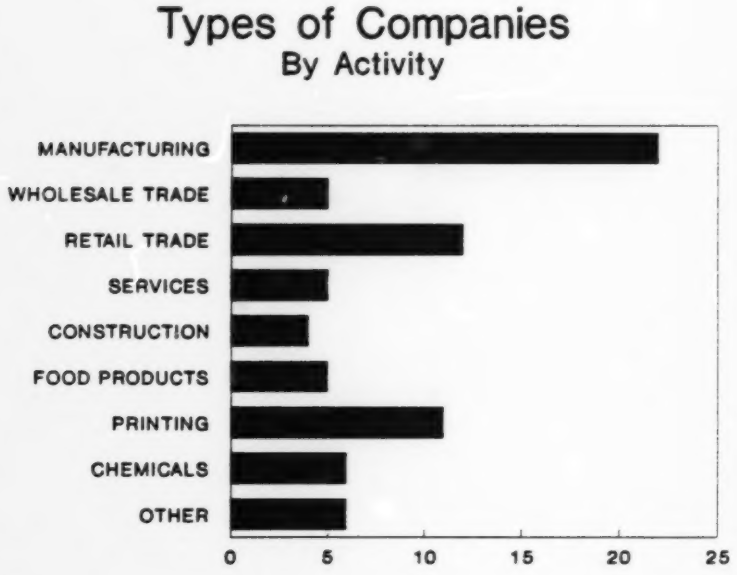

Figure 3

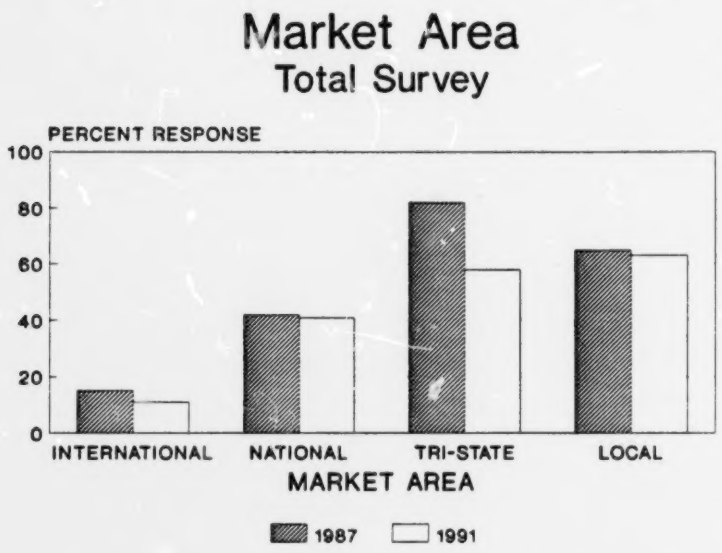

Figure 4

Market Area and Competition

The businesses and industries of the Mid-Mon Valley operate over a wide area. Forty percent of the firms surveyed do business nationally. This is an important segment of the market, representing an influx of money into the valley economy. Figure 4 shows a comparison of market areas for both 1987 and 1991. The percentage of companies operating in the tri-state market has decreased. The other market areas are not significantly lower in 1991 than in 1987.

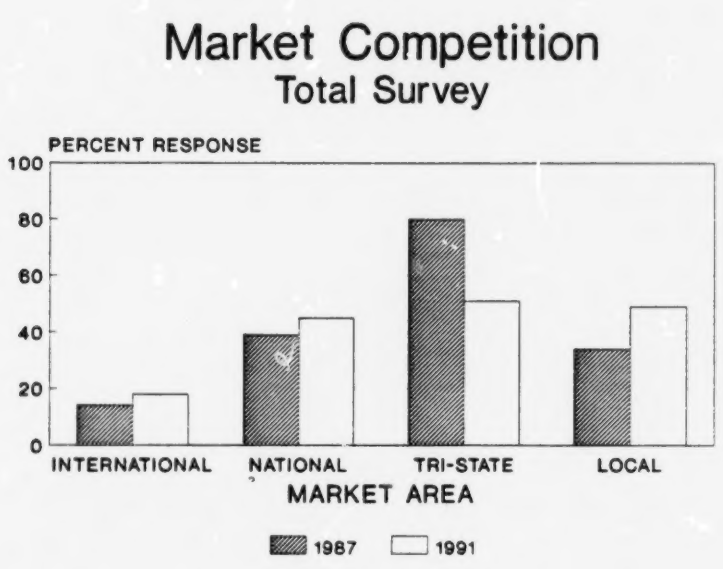

Figure 5

In 1987 there was a concern of competition from outside the valley. Reported areas of competition are shown in Figure 5. Only the tri-state competition is perceived to have decreased since 1987. This is the same area which fewer companies see as their market. For comparison, a subgroup of companies was established. There were 42 companies that responded to both the 1991 and 1987 surveys. This subgroup, seen in Figure 6 and 7, shows a reduced market area with increased competition. As competition has risen and their market share has declined, the concerns of companies in 1987 seem to have been valid.

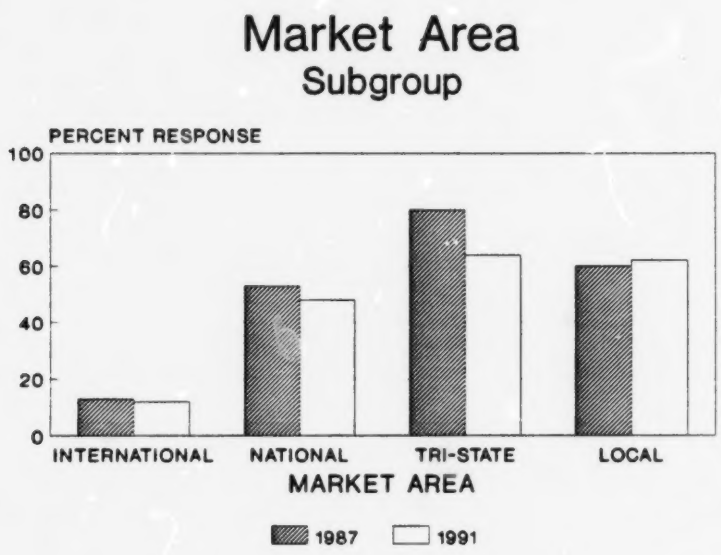

Figure 6

The 1987 report suggested forming an early warning system to identify problems. The alarm appears to be sounding now. With the majority of the local firms being small, assistance in meeting the competition may be critical. In Chapter Three the use of technology is considered and its impact on this problem explored.

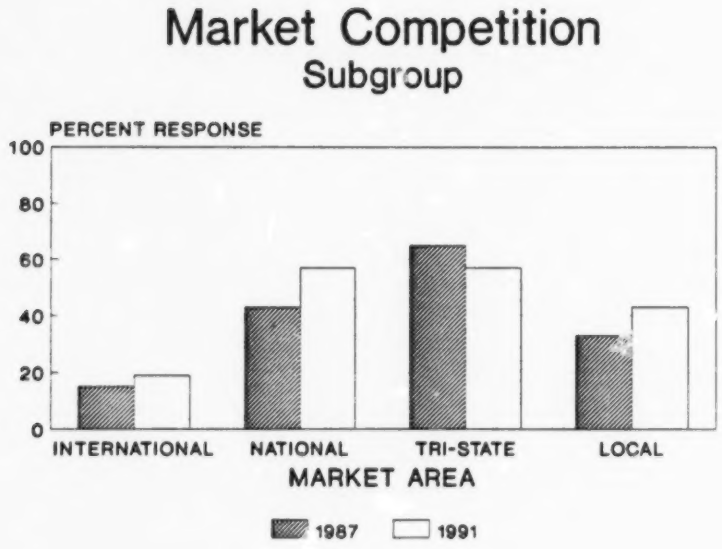

Figure 7

Employment in the Mid-Mon Valley

Growth can be measured by examining the changes in employment from the 1987 period to today. In the Fuller and Gillis survey, employment numbers for both 1987 and 1984 were determined. Additionally, the firms surveyed made a projection for a 24 percent increase in employment by 1990. To determine if this was an accurate prediction, the employment figures in the subgroup of companies were examined (see Figure 8).

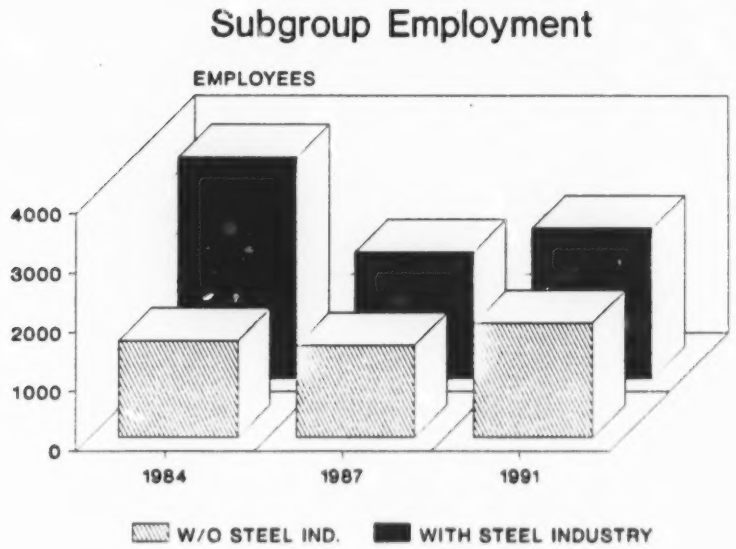

Figure 8

The data is shown with and without the steel industry included. Figure 8 illustrates there has been growth since 1987. The percentage of growth is 24.2 percent for the group without steel included, and 18.6 percent for the group with steel included. Although this is impressive growth, it is still 32 percent below the 1984 subgroup employment level. The growth rate with steel included is less than the 24 percent predicted by the 1987 survey, but it is still significant recovery. This clearly shows the impact of the changes in the steel industry and the difficulty in recovering.

Composition of the Workforce

In addition to the number of people employed, it is important to know the types of jobs in which they are employed. In Workforce 2000 by the Hudson Institute (1987), the occupational mix is predicted to shift toward the higher skilled jobs. That report states that half the new jobs created between 1987 and the year 2000 will require training beyond high school. Information exists in both the 1987 and the 1991 survey to allow examination of the composition of the Mid-Mon Valley workforce. In Figure 9, the workforce is divided into five categories: unskilled, semi-skilled, skilled, clerical, and professional/ managerial. These categories will be used for several comparisons in this report.

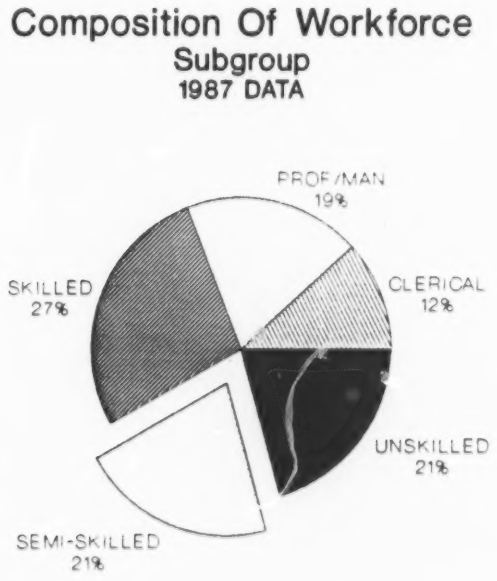

Figure 9

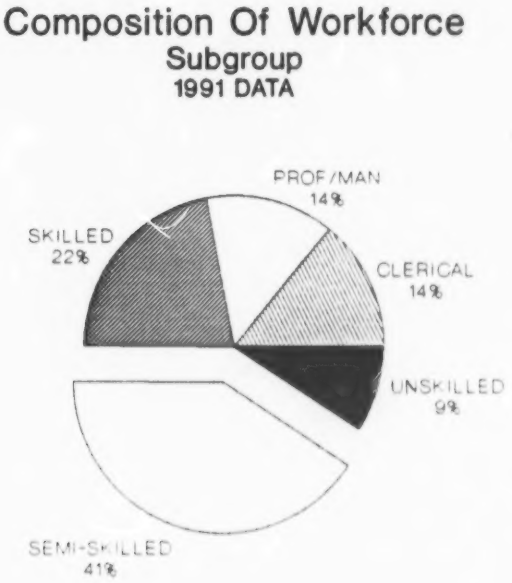

Figure 10

Examination of 1987 subgroup of companies is reveals that 21 percent of the jobs were available to the unskilled worker (Figure 9). However, in 1991 these same companies are reporting that 9 percent of the jobs are available to the unskilled worker (Figure 10). At the same time the job share that is designated as semi-skilled has increased from 21 percent to 41 percent. This decline in unskilled jobs is just what is predicted in the Workforce 2000 report. This elimination of unskilled jobs in favor of jobs requiring more skills is called a skill-twist. The results are similar if the entire sample from both studies is examined (Figure 11 and 12). This implies a general trend and not a feature unique to the subgroup companies involved in both surveys.

Composition Of Workforce
Total Survey
1987 DATA

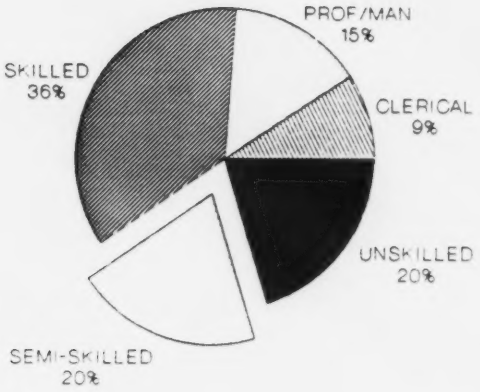

Figure 11

Composition Of Workforce
Total Survey
1991 DATA

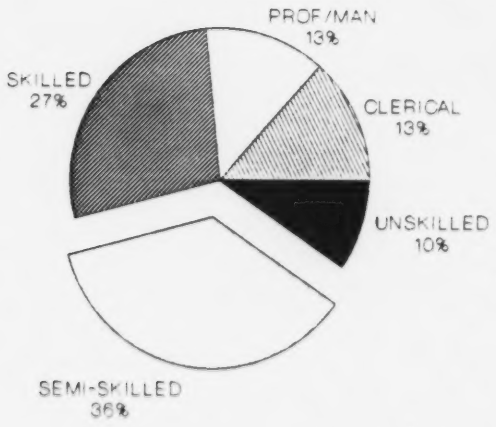

Figure 12

Employee Recruitment

Each company was asked to indicate which category of worker it had problems in recruiting. The results from the survey are presented in Figure 13. The most difficult to recruit was the skilled worker, with 28 percent of the companies expressing problems in that area. Finding Professional and Managerial workers was considered a problem in 14 percent of the companies. Little difficulty was expressed (2 percent of companies) in finding unskilled workers. This may be related to the shrinking job share for this category of worker. Seven percent of the companies expressed a problem finding semi-skilled workers. Since the semi-skilled worker is 36 percent of the needed workforce, this may represent a future problem.

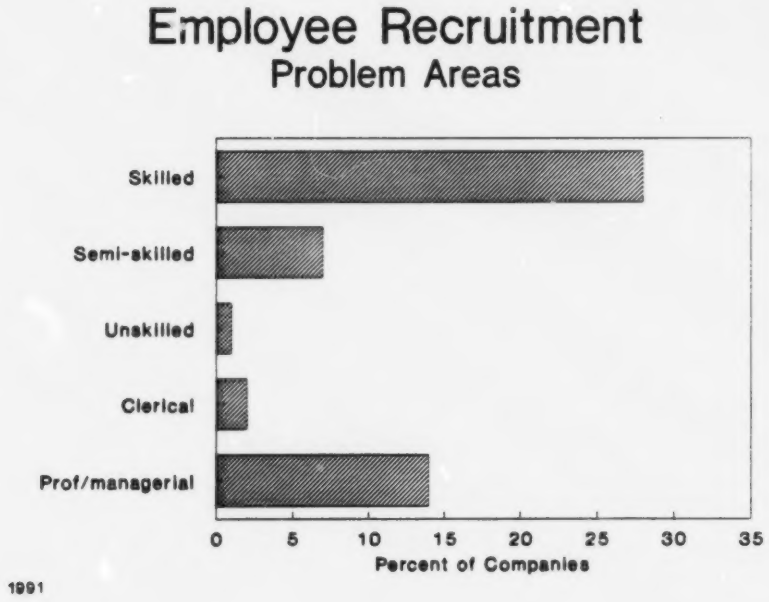

Figure 13

In an attempt to determine the techniques used by companies in the Mid-Mon Valley to recruit new workers in the skilled and Professional/ Managerial categories of jobs, each company was asked to indicate the methods and places used to seek new employees. The most common method for either category was word of mouth. The second most common source was newspaper advertisement.

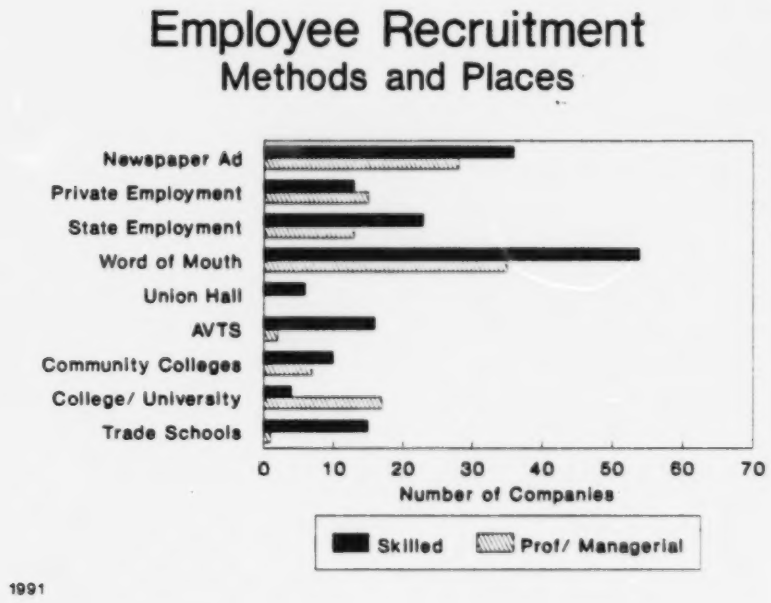

Figure 14

The Area Vocational Technical Schools (AVTS) and the trade schools are used about equally as sources of skilled workers. The new skilled workers in these schools are less likely to benefit from word of mouth advertising than those workers currently employed. This may contribute to the companies expressed difficulty in finding skilled workers. Each of

these schools, as well as colleges, universities, and community colleges, have placement offices, and more companies should be encouraged to use these sources.

Profile Summary

Despite a tremendous job loss in the mid-eighties due to the steel industry, the Mid-Mon Valley is beginning to recover. The valley has a strong collection of small companies as well as large employers. The activity is diverse with the majority of companies still being in the manufacturing area. Competition from outside the valley has increased and companies may need assistance in meeting that competition. Employment in the valley is following the national trend and experiencing a skill-twist in the job mix. This is leading to a perceived shortage of skilled, professional and managerial workers. However, communication between companies needing workers and the workforce in general is not coordinated and depends primarily on word of mouth.

CHAPTER 3

TECHNOLOGY ASSESSMENT

The 1987 study of the Mid-Mon Valley by Fuller and Gillis suggested that increased use of technology could improve the competitive position of the companies in the valley. Suggestions included increased use of computers and computerization of companies. The 1991 survey discovered that 65 percent of the companies responding make some use of microcomputers. Figure 15 shows the number and type of software packages being used by these companies. The major application package is accounting, followed by spreadsheets. These two applications would indicate that computer use has penetrated into the office and accounting portions of the companies.

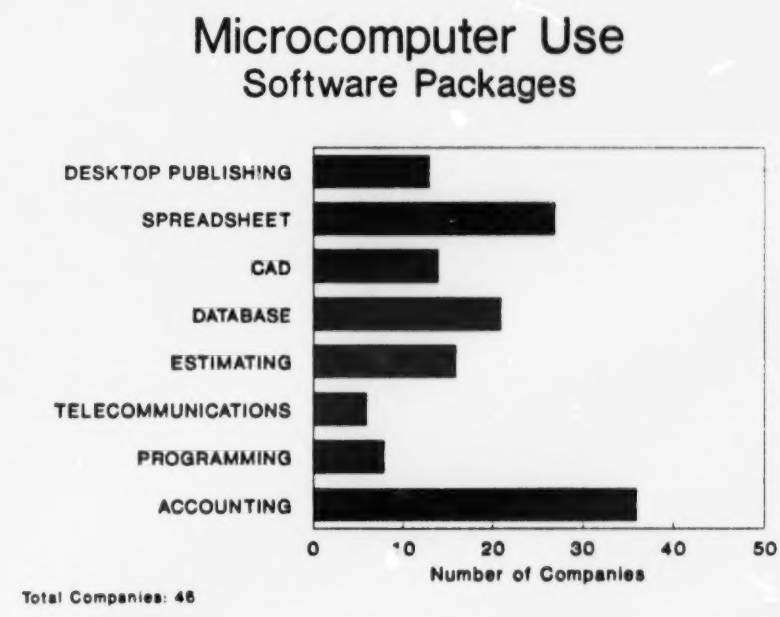

Figure 15

Several firms also reported using database software. This would suggest that the applications of computers in these companies are in the billing and inventory management portions of the business. Computer Aided Drafting and Design (CADD) and desktop publishing were also reported by several firms.

Investment in Technology

The companies were asked to indicate their plans for capital investments in technology over the next five years (Figure 16). Fifty eight percent of the firms responded that they were planning investments in technology. The types of technology that were suggested are shown in Figure 16 and Table 2. The majority of these expenditures are reported to be for computers and computer-related technology.

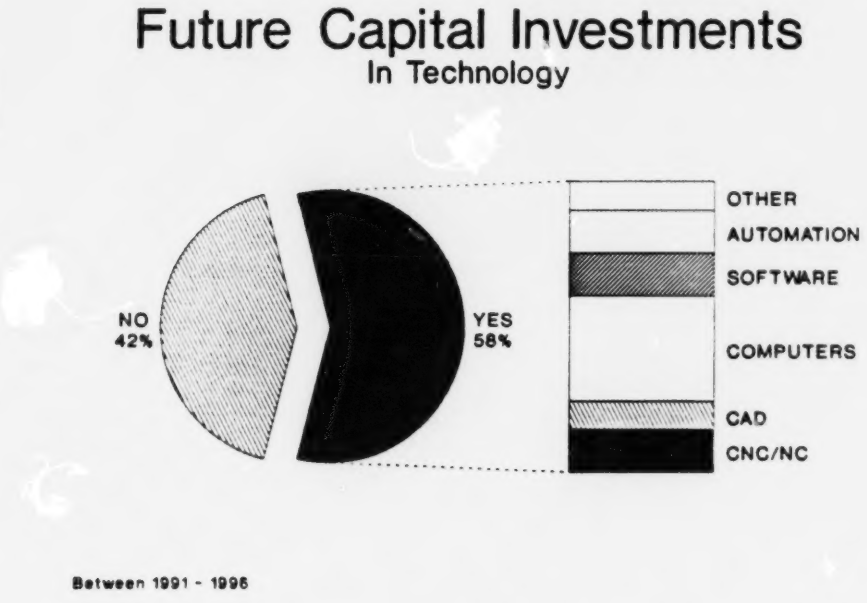

Figure 16

Future Technology Capital Investments

Technology	Percent
CNC/NC	15
CAD	10
COMPUTERS	35
SOFTWARE	15
AUTOMATION	15
OTHER	10
	100

Table 2

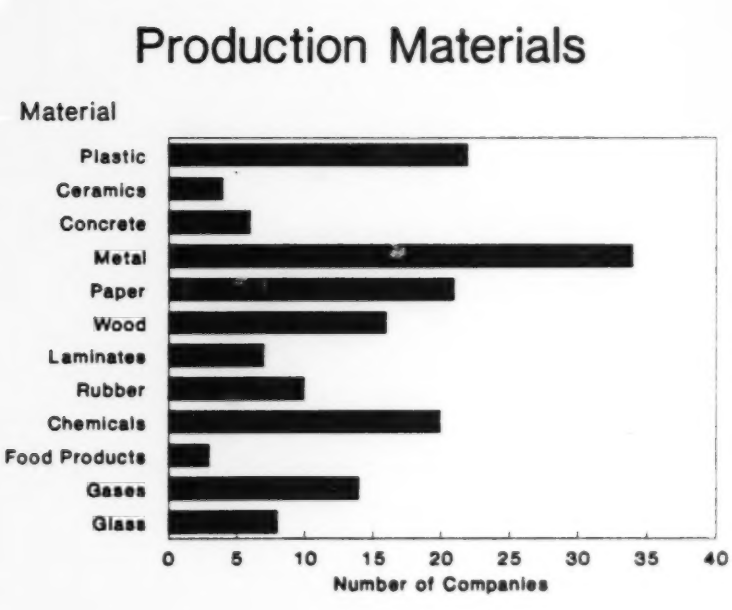

Figure 17

Equipment and Technology

The types of materials being used by manufacturers in the Mid-Mon Valley are those to be expected: metal, plastic

and paper (Figure 17). There are many machine shop and fabrication firms among the manufacturers. The primary fabrication processes being used are shown in Figure 18. The leading processes are welding and machining.

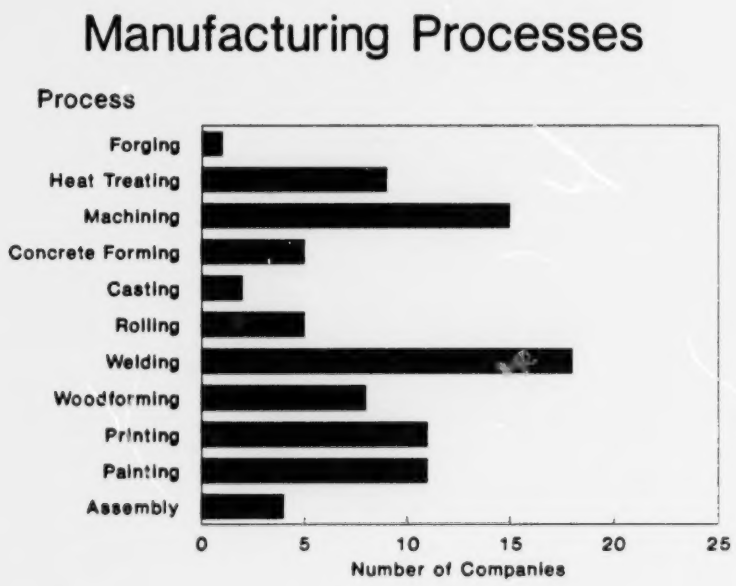

Figure 18

These are the standard processes of the metals industry. If we compare this to the response to the question of what high-technology processes are in use (Figure 19), the areas of Computer Aided Drafting and Design with Computer Aided Manufacturing (CAD/CAM), and the Computer Numerical Control (CNC), are the most popular. These technologies are supportive of the machining process common to these companies. CAD and CNC are also the areas on which the companies expect to spend 25 percent of their future technology capital (see Table 2).

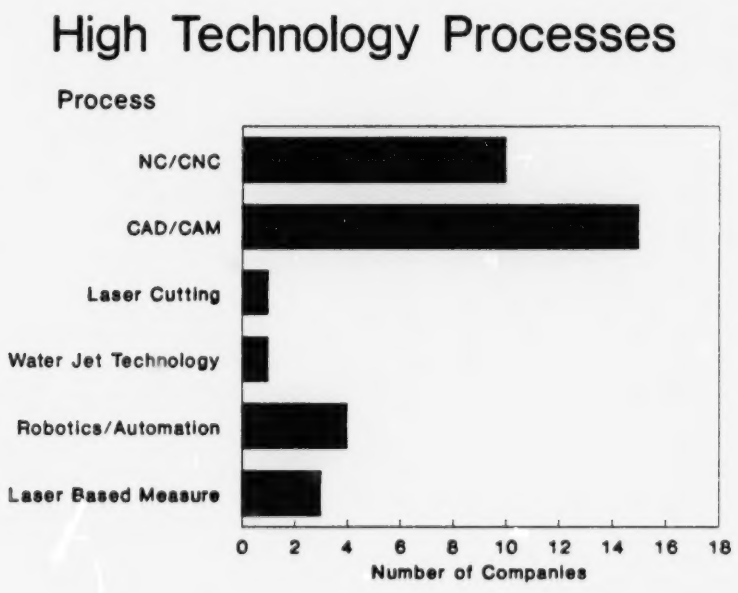

Figure 19

Who makes the decision in the company to invest in new technology? In the majority of the companies surveyed (54 percent) that decision is made by the owner (see Figure 20). Since the majority of the companies are small, owner-operated firms, this is not surprising (see Chapter 2, Figure 1). In the larger firms the Plant Manager, President or Vice-President is responsible for these decisions. No firms indicated any job titles specifically charged with technology assessment or transfer.

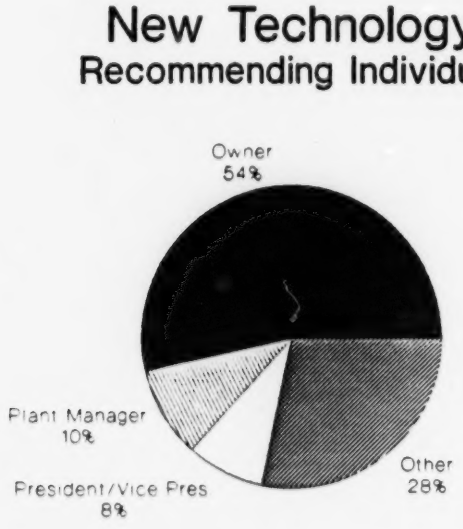

Figure 20

These individuals learn of new technology in informal ways. The primary sources are magazine and journal articles. The next most common source of information is the vendors of the

technology. This takes the form of direct mail advertisements, sales representatives and trade shows. Since there is a commercial interest in these three channels of information, how unbiased and balanced the information will be is questionable. Very little use is made of formal workshops or college programs.

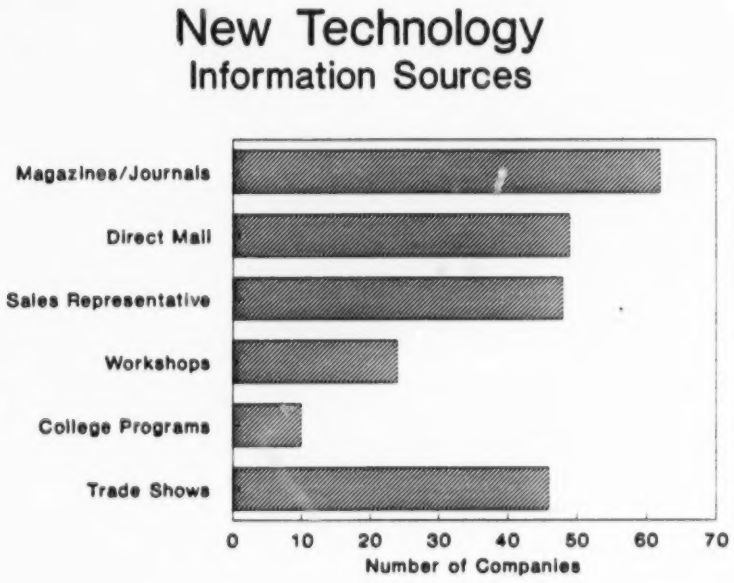

Figure 21

Summary of Technology Assessment

Many companies in the Mid-Mon Valley have applied the computer to the jobs of accounting and information control. This process of computerization of tasks should continue, with a majority of firms indicating capital expenditures for computer-based technology. The use of CAD and CNC should increase. Relatively low on the list are technologies that are not computer related. The companies appear to be looking only at technology presented to them by vendors. Participation in structured programs of technology transfer through workshops or college programs is low.

CHAPTER 4

EDUCATION AND TRAINING

During the past decade, new industries have been characterized by their application of computer technology (Toffler, 1980). John Naisbitt (1982) contends that knowledge is the most important resource of industry. As has been shown during this period, the Mid-Mon Valley has suffered a loss of jobs due to the decline in the steel industry. Additionally, the effects of the skill-twist in the job mix have increased the importance of pre-employment training and re-training of the workforce.

Employee Qualities Desired by Companies

The companies and the people of the valley need programs that will provide the skills desired by industry. Each company was asked to rate the desirable qualities of both its skilled and professional/ managerial employees. This information is presented in Figure 22. For either classification, employers consider a positive work attitude to be important. Over half the firms indicated that for their skilled employees, technical skills, problem solving ability, positive work attitude, and ability to work with others is important. Two of these qualities are knowledge-related and two are attitude-related. Schools need to communicate to students the importance given to attitudes in the work place by the employers.

Figure 22

For professional/ managerial employees, over half the companies reported as important problem solving skills, communications skills, interpersonal skills, writing skills, the ability to work with others, a positive work attitude and ethics. All of these are skills that can be improved by education and training and should be emphasized in schools.

The need for math skills is reported with nearly equal frequency for both skilled and professional/ managerial employees. Communication and writing skills are, however, viewed as primarily professional/ managerial skills. An interesting response can be seen in the area of computer skills. Skill in the use of the computer is not considered important for the skilled worker by these companies. This seems contradictory with the expansion into newer computer

based technologies, such as CAD and CNC, reported by the companies. Perhaps those activities are not considered by the companies as skilled but rather professional.

Training Resources

The majority of companies in the Mid-Mon Valley are small to medium size. Extensive training programs for these companies would be very expensive. These companies could be served by outside agencies. However, when asked what training agencies were used (Figure 23), the vast majority had used none. The primary training resource used was on-the-job- training (see Figure 24). The schools and colleges were used about equally by at least 26 percent of the companies.

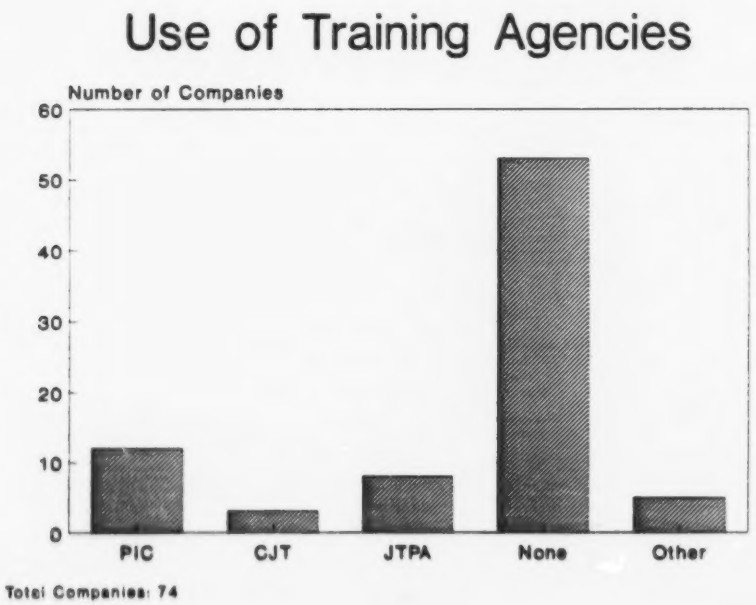

Figure 23

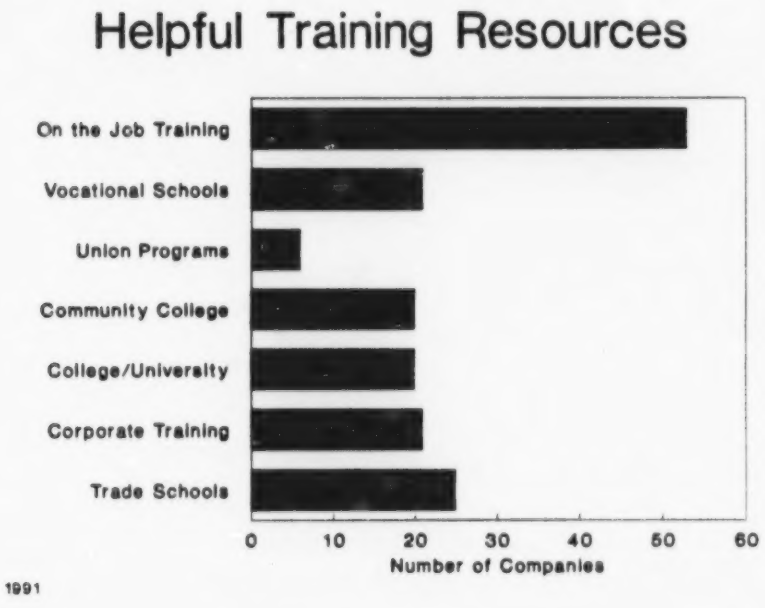

Figure 24

The small impact of union programs is due to the low percentage of unionization of the Mid-Mon Valley work force. This was reported in the 1987 survey.

Employer Assistance to Training

Even though the major source of training is on the job, employers are expressing interest in the continuing education of their employees. Programs (tuition refunds, release time, etc.) to encourage individual employees to seek advanced training or education are reported by 58 percent of the companies. Thirty-four percent of the companies also report participation in co-operative education programs with the schools.

Co-operative Education

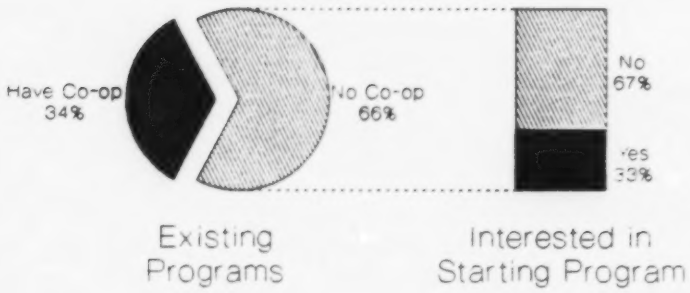

Figure 25

These programs allow students to gain job experience while still in school. Encouraging is the response of companies without such programs, 33 percent would be interested in starting such a program (see Figure 25).

Education and Training Summary

The most frequently mentioned quality desired in an employee is a positive work attitude. Cooperation with others, problem solving skills, and math skills are equally as important to employers as the specific technical skills of the job. The training provided is rather fragmented with on the job training being the most popular. Formal outside assistance in training is seldom used. Incentives exist in most companies to encourage employees to increase their knowledge and skills.

CHAPTER 5

CONCLUSIONS

This report began by establishing six objectives related to the Mid-Mon Valley. The previous chapters have examined the information supplied by the companies within the Mid-Mon Valley through the Survey questionnaire (Appendix A). To determine the relationship of this information to the objectives, some interpretation is necessary. In the following sections the implications for each objective will be discussed.

Objective One

> To determine the extent to which companies have expanded as projected in the 1987 survey of the Mid-Mon Valley.

To characterize the companies as expanded would be incorrect. In Chapter 2, Figure 8, the employment figures show that the subgroup of companies (with steel included) grew by 18.6 percent. This fell short of the expectations of 24 percent projected by the 1987 survey. The decline in the steel industry has had a tremendous impact on the Mid-Mon Valley. This is shown by the 32 percent drop in employment from 1984 to 1991. A better description would be that the valley is in a process of recovery.

There is a shortage of skilled workers reported by the companies. Additionally, a process known as a skill-twist is taking place. This is reducing the number of unskilled jobs available. The number of semi-skilled positions has nearly doubled for the subgroup companies (Figure 9 and 10). This

suggests that some unskilled jobs have been changed and upgraded. The number of skilled positions dropped from 27 to 22 percent, which may also represent a re-definition of job title. Even with this drop, companies report difficulty in finding skilled workers. They may be using semi-skilled personnel in some of those positions. This would explain the heavy use of on-the-job training reported by many companies.

Objective Two

> To determine the extent to which companies in the Mid-Mon Valley are remaining competitive with both local and distant markets.

The companies are experiencing some market change within the tri-state area. Fewer companies see the tri-state as a market. The cause of this change is not clear from the information in this study. However, the companies do feel that competition has increased slightly in the other areas. It is important that the valley has companies doing business outside the local area to effect a sort of local balance of trade. As a group the companies did not see their markets expanding over the 1987 survey areas. Programs to help the smaller companies (69 percent of survey) effectively market to a broader area will make the companies more competitive and encourage expansion. Groups like the Mon Valley Progress Council and others should be involved in this activity.

Objective Three

To determine to what extent companies are using or planning to use new technologies and how these companies assess the new technology.

Computer Technology. Companies in the Mid-Mon Valley appear to have embraced the computer as the answer to technology. Primary usage appears to be in the billing and inventory control areas of business. This process will continue with a large fraction of the companies expecting to buy new computers and software over the next five years. The use of CAD and CNC will also be increasing. A curious result, however, is that skilled workers were not seen as needing computer skills. Who then is operating the CAD and CNC programs currently in the valley? Who will operate them in the future? Is this activity expected to be done by the professional/ managerial workers? These are questions left unanswered by this survey and should be examined more closely in the near future. The Department of Engineering Technology at South Campus has a strong program in Computer Aided Drafting and Design. That group should survey the drafting related firms in the Mid Mon Valley to determine what job skills are expected of the draft persons and CAD operators. Regardless of who will operate these computers, special training will be needed to effectively use these computer based design tools.

Information Sources. Most companies report that they find out about new technology primarily through vendor controlled

channels. There appears to be little use of formal channels such as colleges and universities. This is disturbing, since there are several institutions in the Mid-Mon Valley with many technology programs in operation. The schools should help these smaller companies by becoming involved in technology transfer through continuing education. Schools must take the leadership in establishing seminars and programs to provide critical technology information. Further, the schools must cooperate to provide joint programs and avoid expensive duplication of efforts.

Less than 25 percent of the proposed technology is targeted toward non-computer based technology. This may be due to a disparity in the vendor based information sources. Many companies are overlooking changes in existing technology because of a lower level of vendor support. Impartial seminars and courses provided by schools can help the companies evaluate cost effective technology and avoid faddish, and expensive technology.

Objective 4

> To determine how the companies in the Mid-Mon Valley work with the schools at all levels for both pre-employment skills and upgrading of current employees.

Employee Assistance. Companies are showing an interest in the education of their employees by having special assistance programs available such as tuition refunds and release time. Some larger companies are offering courses on the work site.

Cooperative Education. By participating in cooperative education programs, 33 percent of the companies are helping

many students to learn first hand the expectations of business and industry. Another 22 percent of the companies expressed interest in becoming involved. This shows that business and industry is interested in helping with pre-employment training.

Schools helpful. In general, the companies expressed satisfaction with the school programs they use. Cooperation between the companies and the schools would have to be described as unstructured. More coordination between schools, industry, business, training agencies and development agencies will provide the pre-employment skills needed to fill the semi-skilled and skilled positions.

Objective 5

To determine the training needs of the Mid-Mon Valley in the next few years.

Desirable Employee Qualities. The effect of the skill-twist on the job mix increases the importance of pre-employment training. Only about 10 percent of the jobs in the survey were classed as unskilled. The major qualities desired in a skilled worker can be grouped into three areas:

(1) Attitudes
    positive work attitudes
    ethics

(2) Technical Skills
    field-specific skills
    math skills
    problem solving

(3) Interpersonal Skills
    communication
    working with others

A large number of companies report use of on-the-job

training. This training concentrates primarily on technical skills. Closer partnerships with training agencies and schools will assist the companies in training employees in attitudinal and interpersonal skills.

Partnerships. With the majority of companies having 24 or less employees, it will be necessary to group employees from several companies to make it financially possible to provide training. The smaller companies would have only one or two employees needing training at a time. This small number may be why the companies express little use of training agencies. Special training partnerships must allow the workers to advance from unskilled to semi-skilled to skilled. This approach will lessen the difficulty in finding skilled workers.

Objective 6

> To determine how companies in the Mid-Mon Valley participate with schools in joint projects and how important this is to companies.

The only large scale program reported was co-operative education. This is of benefit to the pre-employment worker. The educational assistance programs reported by 58 percent of the companies are too individual to be considered a joint project. This is an area still in need of attention. A partnership requires more than one participant. The schools need to be aggressive in contacting multiple companies and setting up partnerships with smaller companies.

CHAPTER 6

RECOMMENDATIONS

The survey of the Mid Mon Valley conducted in the Spring of 1991 found the companies in a process of recovery from the changes encountered in the mid-eighties. Listed below for action by groups within the valley are recommendations that would accelerate and enhance this recovery process.

Recommendations to Companies:

1. Business and industry must establish better employee search procedures to find the best qualified people. Use of Job Service and placement services of schools should be high on the list with less dependence on word of mouth.
2. All companies should encourage and support their employees' participation in education and training that will enhance their job performance.
3. All companies should evaluate their ability to assist with pre-employment training through co-operative education programs.

Recommendations to Economic Development Agencies:

1. The economic development agencies of the Mid Mon Valley should establish working partnerships with the schools for delivery of education on technology to local companies.
2. The Mid Mon Valley Progress Council should establish a program to assist small companies in expanding their market areas.

Recommendations to Educational Institutions:

1. The colleges and universities within the Mid-Mon Valley should establish a means to effect transfer of their computer and non-computer technical experience to the companies of the valley. This should include traditional seminars and workshops, and explore innovative delivery methods to take the information directly to the company.
2. A meeting of schools (colleges, University, trade, and area vocational) should be called by January 1992 to share information on existing programs and to form cooperative links between these groups. Because of the importance of this to the valley the Mid Mon Valley Progress Council should work with Westmoreland Community College, Community College of Allegheny County, and California University of Pennsylvania to convene this meeting.
3. There needs to be established a single representative organization or consortium to coordinate and focus the training resources within the region.
4. All schools must emphasize to their students the importance business and industry places on work attitudes and interpersonal skills. This should be presented to students in both the vocational and the academic track.

5. The Engineering Technology Department of the Community College of Allegheny County should survey firms using CAD to determine the skills expected of CAD operators.

For any of these recommendations to work, more coordination between schools, industry, business, training agencies, and development agencies is needed. Each must aggressively work toward partnerships to assure that the work force of the Mid Mon Valley is world class.

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APPENDIX A

Questionnaire

Mid-Mon Valley Technical Training Project
Department of Engineering Technology
Community College of Allegheny County
South Campus
1750 Clairton Road
West Mifflin, PA 15122

Mid-Mon Valley Survey

Thank you for taking the time to share your expertise. Your responses will assist the educational institutions and economic development agencies within the area better relate to the needs of business and industry. The focus of the survey is on the impact of the changes in technology on the operation of valley industries and its impact on current and future employees. If a question does not apply to your situation place n/a on that line.

All responses will be kept in complete confidence and this cover page containing company name, etc. will be removed before processing. If you would like a copy of the final report please fill out the name and address below.

Optional. For copy of report only.

Name: Address: City: Zip code:

Section I:

1. Your Company's name _____

   Your Title _____

2. Is your firm a subsidiary of another company? Y or N
   If yes what is the name of the parent organization?

   _____

3. Type of products or SIC Code_____

4. Total Number of employees at this location _____

5. During the last twelve months how many new hires were made at this location? _____

6. During the next twelve months how many new hires do you expect will be made at this location? _____

7. What is the composition of your workforce?

	Percent
Skilled	_____
Semi-skilled	_____
Un-skilled	_____
Clerical	_____
Professional or Managerial	_____
Total	100%

8. Check all the regions below that describe the market area for your product or services.

___ Local

___ Tri-state

___ National

___ International

9. Check the regions below that describe the major competition to your company.

___ Local

___ Tri-state

___ National

___ International

Section II: Technology Assessment

10. In the operation of your company what materials are used in the production of your product. Please check all that apply.

__ Plastic __ Paper __ Chemicals
__ Ceramics __ Wood __ Food Products
__ Concrete __ Laminates __ Gases
__ Metal __ Rubber __ Glass
__ Other_____

11. What are the major processes used in the production/ provision of your company's goods or services?

__ Forging __ Casting __ Printing
__ HeatTreating __ Rolling __ Painting
__ Machining __ Welding __ Other_____
__Concrete forming __ Woodforming

12. Many newer, High Tech, processes are being introduced to the industrial world. What processes below are being used or considered by your company?

__ NC/CNC __ Water Jet technology
__ CAD/CAM __ Robotics/ Automation
__ Laser Cutting __ Laser Based Measuring
__ Other _____ _____

13. The microcomputer is having an impact on industry. Are you currently using microcomputers at your company?

__ Yes __ No.

If yes, please check those applications below you are using.

__Desk Top Publishing __software development
__Spread sheets __Telecommunications
__Computer aided Drafting __Accounting
__data base programs __Other _____
__Estimating/ scheduling _____

14. How does your company learn of new technology appropriate to your business? Check all that apply.

__ Magazines/ trade journals
__ Direct mail product literature
__ Sales representatives
__ workshops
__ college programs
__ trades shows
__ other _____

15. Who within your company is responsible for recommending adoption of a new technology? (owner, production manager, Director of Engineering, etc.)

_____

16. Is your company anticipating any capital investments in technology during the next five years.
___Yes ___No

If yes what types of technology are being considered?

_____

Section III: Training

17. Has your company provided training opportunities for individual students through a cooperative education arrangement with schools?
__ Yes __ No

If no, would you be interested in a cooperative education program?

__ Yes __ No

18. Does your company provide encouragement (tuition, refunds, release time, etc.) for individual employees to seek advanced training or education?

__ Yes __ No

19. Many agencies provide funding for training of current or newly hired employees. What agencies listed below has your company used?

__ Pennsylvania Industrial Council (PIC)
__ Customized Job Training
__ Job training Partnership Act
__ Other_____
__ none

20. Does your company have problems recruiting employees in any of the following areas?

__ Skilled
__ Semiskilled
__ Unskilled
__ Clerical
__ Professional/Managerial

21. In hiring either skilled or professional/managerial personnel, which qualities below are considered? Check all that are important.

	Skilled	Professional/ Managerial
Technical skills	☐	☐
problem solving ability	☐	☐
communication skills	☐	☐
Interpersonal skills	☐	☐
computer skills	☐	☐
writing skills	☐	☐
math skills	☐	☐
ability to work with others	☐	☐
positive work attitude	☐	☐
project management	☐	☐
entrepreneurial skills	☐	☐
ethics	☐	☐

Comment on any special or emerging skills you will be needing within your company.

_____

22. Please rate each training resource below, if you have not used a resource check not applicable.

	helpful	not sure	not helpful	not applicable
On the job training				
vocational schools				
union programs				
community college				
college/university				
corporate training programs				
Trade schools				

23. Please check those methods used by your company to obtain needed skilled or professional/ managerial employees.

	Skilled	Professional/ Managerial
Newspaper advertisement		
Private employment service		
State employment service		
Word of mouth		
Union Hall		
Area vocational schools		
Community Colleges		
College/University		
Trade schools		

APPENDIX B

Business Participants

BUSINESS PARTICIPANTS

ACTION PRINTING
AD FORMS
AERO NUCLEAR
AKZP CHEMICALS, INC
AMERICAN AIR DUCT
ARC ELECTRIC
BADZIK PRINTING SERVICE, INC
BEACON SUPPLY CO
BEARINGS, INC
BETHEM MACHINE SHOP
BOLTTECH, INC
BUSINESS FORMS, INC
COMMERCIAL PRINTING CO
COMMERCIAL STONE CO
CONSPEC CONTROLS
COURIER & DIGEST CO
CRAWFORD DESIGN
CUSTOM KITCHEN FACTORY
DAPUL CO, INC
DC GRAPHIX
DONORA LUMBER CO
DONORA SPORTSWEAR CO, INC
DRAVO BASIC MATERIALS/
CHARLEROI
DYER INDUSTRIES/PROTOTYPE
PRECISIONS
EAGLE IRON & METAL CO
EHLER'S AUTO PARTS, INC
ELLIOTT SUPPORT SERVICES
FIRST FEDERAL SAVINGS BANK
FRANK IREY JR
G.A.L. CONSTRUCTION, INC
HILLCREST DAIRY
HOLLICK PRESS
INTERSTATE PAPER COMPANY
IRECO, INC
JAMES DELAINI IRON WORKS
JAYCEE FOODS, INC
JOHNNY DE, INC
K-Z TOOL COMPANY, INC
L K GRAPHIC COMMUNICATIONS
McGREW WELDING AND
FABRICATING
MONCO PRODUCTS, INC
MONESSEN, INC
MONONGAHELA IRON & STEEL
MON VALLEY INDUSTRIAL
HEAT TREATMENT
MOUNTAIN MACHINE CO
NATIONAL POLYMER, INC
NITROUS OXIDE CORPORATION
NIX OPTICAL COMPANY
NUTRITION, INC
OBSERVER-REPORTER
PAGE ALUMINIZED STEEL CORP
PALMER MANUFACTURING
PENNCRAFT CABINET CO, INC
PITTSBURGH FLEXICORE
PUTNAK PACKING CO
RIVERSIDE IRON & STEEL CORP
ROCK-TENN COMPANY
THE ROSCOE LEDGER
S.A.W., INC
SENOJ ENTERPRISES
SENSORY DEVICES, INC
SIGNS BY TONY MORGOVICH
SMH INDUSTRIAL COATINGS
TECHNOLOGY, INC
TRU-COPY PRINTING
UNION VALLEY CRATE COMPANY
VALLEY TIRE CO
VESELY BROTHERS MOVING &
STORAGE CO, INC
VOCATIONAL REHABILITATION CTR
WALL FIRMA, INC
WALTER LONG MANUFACTURING
CO, INC
WEISS PACKAGING CO
WESTERN FLOUR CO
WETTERAU INC-PITTSBURGH DIV
WHEELING-PITTSBURGH STEEL
CORP